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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,365	03/30/2006	Kim Phan Le	NL03 1187 US1	2286

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EXAMINER

SOFOCLEOUS, ALEXANDER

ART UNIT	PAPER NUMBER
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2824

NOTIFICATION DATE	DELIVERY MODE
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04/03/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

Office Action Summary	Application No. 10/574,365	Applicant(s) PHAN LE, KIM	
	Examiner ALEXANDER G. SOFOCLEOUS	Art Unit 2824	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-14 is/are rejected.
- 7) ☒ Claim(s) 6 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is responsive to the following communications: the Response filed January 15, 2008, and the Foreign Priority filed March 30, 2006.
2. Claims 1-15 are pending in the case. Claims 1 and 11 are independent claims.

Election/Restrictions

3. Applicant's traverse in the reply filed on January 15, 2008 is acknowledged and is persuasive. Therefore, the prior restriction requirement is withdrawn. Claims 1-15 are examined together.

Priority

4. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

5. Figures 1, 2A, 2B, 3A, and 3B should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective

action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

6. The abstract of the disclosure is objected to because of the following minor informalities: phraseology which may be implied.

In the Abstract, line 1, it is suggested to change "The present invention provides an integrated circuit" to --An integrated circuit--.

Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. **Claims 1-3, 5, 7, and 11-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Witcraft et al. (U.S. Patent 6,914,805).**

Regarding independent claims 1 and 11, Witcraft et al. show an integrated circuit arrangement (Fig. 2) having:

at least one electrical conductor (Fig. 2: 106) which, when a current flows through

it, produces a magnetic field (Fig. 2: 120) which acts on at least a further part of the circuit arrangement (Fig. 2: 100), the electrical conductor having a first side oriented towards the at least further part of the circuit arrangement, wherein the electrical conductor comprises

a main line (Fig. 2: 106) of conductive material, and,
connected to its first side, at least one field shaping strip (Fig. 2: 116) made of magnetic material (soft magnetic material, see column 4, lines 40-42).

Regarding dependent claims 2 and 12, Witcraft et al. show the strip is made of a material having a permeability of 100 or higher (see column 4, lines 40-42).

Regarding dependent claims 3 and 13, Witcraft et al. show the strip is made of a soft magnetic material (see column 4, lines 40-42) which means the material has a coercivity of 1 kA/m or lower.

Regarding dependent claim 5, Witcraft et al. show the electrical conductor (Fig. 2: 106) having a length in its longitudinal direction (not explicitly shown, but implicit), wherein the magnetic strip (Fig. 2: 116) extends over a majority portion of the length of the electrical conductor (not explicitly show, but implicit).

Regarding dependent claim 7, Witcraft et al. show the electrical conductor (Fig. 2: 106) having a width in its transversal direction (see Fig. 6: MRAM array with magnetic keeper), wherein the magnetic strip (Fig. 6: 236) is located substantially centrally on the electrical conductor (see Fig. 6 with respect to Fig. 2: 106) with respect to its width (see Fig. 6 with respect to Fig. 2: 106, 116).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. **Claims 4 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Witcraft et al. (U.S. Patent 6,914,805).**

Regarding dependent claim 4, Witcraft et al. teach the soft magnetic material may be nickel iron (see column 4, lines 42-44) and preferably has a high magnetic permeability (see column 4, lines 40-41).

Witcraft et al. are silent with respect to the term "permalloy."

However, it would have been obvious to one of ordinary skill in the art at the time of the invention to use permalloy since it's a particular variation of nickel iron providing a high magnetic permeability preferred by Witcraft et al. (see column 4, lines 40-44) and further it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 227 F.2d 197, 125 USPQ 416 (CCPA 1960).

Regarding dependent claim 14, Witcraft et al. disclose forming the conductor by depositing aluminum copper (see column 4, lines 51-53).

Witcraft et al. are silent with respect to the term "damascene process."

However, it would have been obvious to one of ordinary skill in the art to form the conductor layers using a damascene process since the damascene process is a well-

known metal patterning process used to pattern copper conductors.

11. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Witcraft et al. (U.S. Patent 6,914,805) in view of Bangert (U.S. Patent 6,873,055).

Witcraft et al. teach the MRAM as applied to claim 1 above.

Witcraft et al. are silent with respect to a cross-point array with a second conductor on a second plane and the second conductor provided with a magnetic strip.

Bangert teaches a cross-point MRAM array (see Fig. 1) with a second conductor on a second plane (see Fig. 5C: 3). Bangert further teaches nonconductive material (Fig. 5C: 18) on the second conductor and nonconductive material (Fig. 5B: 22) on the first conductor (Fig. 5B: 2). Bangert is silent with respect to the nonconductive material being a magnetic material, however, Bangert show this nonconductive material is used to shape the magnetic filed applied to the MRAM (see Fig. 3).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the teachings of Bangert to the teachings of Witcraft et al. such that the MRAM cell of Witcraft et al. (Witcraft et al. Fig. 2) is implemented into a cross-point array (having a second conductor) of Bangert (Bangert Fig. 1) and the a magnetic strip is formed on the second conductor in a fashion similar to that of Witcraft et al.'s magnetic strip on the first conductor.

Allowable Subject Matter

12. Claims 6 and 15 are objected to as being dependent upon a rejected base

claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. The following is a statement of reasons for the indication of allowable subject matter:

With respect to dependent claim 6, there is no teaching, suggestion, or motivation for combination in prior art to the magnetic strip being divided into a plurality of segments over the length of the electrical conductor.

With respect to dependent claim 15, there is no teaching, suggestion, or motivation for combination in prior art to (the magnetic strip being divided into) a plurality of segments over the length of the electrical conductor.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

CONCLUSION

When responding to this office action, applicants are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner in locating appropriate paragraphs.

A shortened statutory period for response to this action is set to expire three months and zero days from the date of this letter. Failure to respond within the period

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for response will cause this application to become abandoned (see MPEP 710.02(b)).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Sofocleous whose telephone number is 571-272-0635. The examiner can normally be reached on 7:00am - 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Elms can be reached on 571-272-1869. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AGS

/Richard Elms/

Supervisory Patent Examiner, Art Unit 2824

3.28.08